

Communicable Disease Control

Hantavirus Pulmonary Syndrome (HPS)

What is hantavirus pulmonary syndrome (HPS)?

Hantavirus pulmonary syndrome (HPS) is a rare but serious, and often deadly, lung infection. Hantavirus pulmonary syndrome is caused by a type of hantavirus called Sin Nombre. The virus infects the walls of the capillaries (tiny blood vessels) in the lungs, making them leak and flooding the lungs with fluid.

Where is the Sin Nombre virus found?

Hantaviruses are found in rodents in different parts of the world. Each type of hantavirus has a preferred rodent host. The Sin Nombre virus is carried by the deer mouse, the cotton rat, and perhaps other rodents common throughout North America. These rodents live in semi-rural and rural areas and infest camps, old buildings, barns, and homes.

How is hantavirus pulmonary syndrome spread?

The Sin Nombre virus is present in the saliva, urine, and droppings of infected rodents and can live for a long time in the environment in contaminated dirt and dust. People are infected when they breathe in tiny particles of these materials in dust that gets into the air. People may also be infected by handling contaminated materials and then touching the mouth or nose.

Person to person spread of HPS has not been identified in the United States. Cats and dogs do not spread the illness either, although they can bring infected rodents into contact with humans.

What are the symptoms of hantavirus pulmonary syndrome?

The first symptoms are general and flu-like: fever (101°- 104°F), headache, stomach pain, pain in the joints and lower back, coughing, and sometimes nausea and vomiting. The main symptom is difficulty breathing as the lungs fill with fluid. This can quickly lead to an inability to breathe and, in severe cases, death from suffocation.

How soon after exposure to symptoms appear?

Symptoms can appear from 3 days to 6 weeks after infection, but usually within 2 weeks.

How is hantavirus pulmonary syndrome diagnosed?

Because the early symptoms are non-specific and vary from person to person, HPS is hard to identify in its early stages. It is usually detected only when it affects the lungs and causes difficulty in breathing. Laboratory testing may help confirm an HPS diagnosis.

Who is at risk for infection?

Those who work, play or live in closed spaces with active rodent infestation are at risk, although the chances of infection are low. People who frequently handle or are exposed to rodents, such as wildlife biologists or exterminators, should take special care, as should those who clean or work in attics or crawl spaces or who clean or renovate buildings that might be rodent infested. The risk to campers, hikers, and tourists is very small.

What complications can result from hantavirus pulmonary syndrome?

Infected persons can develop untreatable respiratory failure. Although fatalities related to HPS are decreasing, over 1/3 of those infected have died.

How is hantavirus pulmonary syndrome treated?

No antiviral drug is effective against HPS. Although there has been some experimental use of the antiviral drug, ribavirin, mechanical ventilation (use of a respirator) is the main treatment. Most patients need to be hospitalized in intensive care. The sooner an infected person gets medical treatment, the better the chance of recovery.

How common is hantavirus pulmonary syndrome?

HPS is a rare disease. It was first recognized in 1993 after the investigation of an outbreak of sudden fatal respiratory illness in the southwestern United States. Since then, fewer than 200 cases of HPS have been identified in 20 states, mostly in the western part of the country. Montana has averaged 1-2 cases per year.

Is hantavirus pulmonary syndrome a new or emerging infectious disease?

Yes. The Sin Nombre virus is a newly recognized virus, and HPS is a newly recognized disease. Scientists are working to learn more about its extent, transmission, and clinical course, and to improve diagnostic tests and treatments.

How can hantavirus pulmonary syndrome be prevented?

The best way to prevent HPS is to avoid contact with rodents and to avoid inhaling dust that might be contaminated with their saliva, urine, or droppings.

1. Control mice inside. Keep the kitchen clean, and store food and trash in containers with tight lids. Carefully dispose of dead rodents trapped indoors or brought inside by pets. Rodent-proof the house by sealing cracks and clearing brush from around foundations.
2. Control mice outside. Eliminate possible nesting sites. Elevate hay, woodpiles, and garbage cans and place them away from the house. Store animal food in closed containers.
3. Use safety precautions when cleaning indoor or outdoor areas that might be contaminated by rodent saliva, urine, or droppings. Do not stir up and breathe dust. Before cleaning, wet down potentially contaminated areas with a household disinfectant (such as bleach or alcohol). While cleaning wear rubber gloves, and disinfect them after use. Dust masks that cover the nose and mouth can also help.
4. When enjoying outside activities, stay clear of rodents and their burrows and nests. Keep campsites clean and food tightly sealed. Open up and air out rural or wilderness cabins before entering or cleaning. Remove garbage and trash before leaving.